

## SECTION 2

### AFFECTED ENVIRONMENT, POTENTIAL IMPACTS, AND MEASURES TO MITIGATE IMPACTS DURING CONSTRUCTION

The majority of this project will be constructed within MDOT's existing ROW; therefore, the proposed project will have minimal social, economic, or environmental impacts. As with all proposed projects, MDOT conducted a review (visual inspections, literature searches, database queries, etc.) of potential impacts. Based on these reviews, it was determined that there were no potential adverse impacts to visual resources. The impacts that had a reasonable possibility for individual or cumulative significant impacts have been analyzed. The results of this analysis and potential measures to minimize short-term impacts during construction are disclosed in this section.

#### 2.1 RIGHT-OF-WAY IMPACTS

The objective of the Preferred Alternative is to make improvements to the I-196/I-96 freeway system and connecting interchanges within the existing state-owned ROW wherever possible, and to minimize adjacent property impacts. However, in order to complete the proposed improvements, some limited ROW acquisition will be required for this project. MDOT is proposing to acquire ROW at College Avenue, Fuller Avenue, M-21(Fulton Street), and along I-96 South of Leonard Street. For location of the existing and proposed ROW, see Figures C-1 through C-8 in Appendix C. Proposed new ROW areas are depicted in red in the area between the existing and proposed ROW lines. A conceptual stage relocation plan can be found in Appendix D (Conceptual Stage Relocation Plan). The following are the anticipated ROW impacts:

**I-196 and College Avenue Interchange.** This interchange will require additional ROW within all four quadrants of the interchange.

- A small apartment building located in the northwest quadrant will require a minor taking to accommodate a sidewalk and right turn lane. ROW acquisition will not involve buildings or structures or existing parking spaces. The only impacts identified are for green space.
- A larger apartment complex is located at the northeast quadrant, and a minor strip taking is necessary to accommodate sidewalk improvements. MDOT will avoid any significant impacts to the apartment complex.
- In the southwest quadrant additional ROW to accommodate a sidewalk is necessary. A large parking area serves an office building and the ROW impact will be minimal without effecting any existing buildings and structures.
- In the southeast quadrant, two existing businesses are in close proximity to the existing ROW. They are former residential dwellings converted to commercial/office use. It is currently anticipated that the sidewalk adjacent to these two properties will be tapering to a maximum of approximately six to eight feet closer to the existing buildings at the eastbound on-ramp terminus. Due to the properties proximity to the existing roadway and their raised elevation, even

minor changes to the existing sidewalk could result in total acquisition of one or both of these properties. The final details of this particular area will be reviewed during the design phase to determine the impacts to these properties.

**I-196 and Fuller Avenue Interchange.** This interchange will require additional ROW in three quadrants of the interchange. There are no ROW impacts in the northwest quadrant of the interchange.

- The Kent County medical complex and State Police lab are located in the northeast quadrant. Both are set back far enough from Fuller Avenue; however, a strip of ROW will be needed from these two parcels to accommodate the lane shift on Fuller Avenue for the wider bridge. ROW acquisition involves unused green space in front of these two facilities, and does not impact any buildings or structures.
- The Paulstra CRC corporate office and its Grand Rapids plant are located in the southeast quadrant of the interchange. An acquisition to accommodate the widening of the road as well as a right turn lane will be required which will eliminate eleven (11) parking spaces from a parking lot adjacent to Fuller Avenue. MDOT will minimize the effects of the road widening on this property during the design phase and will mitigate any lost parking. Access will be maintained for truck and employee traffic entering the plant during construction.
- The southwest quadrant contains the Elbow Room bar/grille and parking lot. A minor ROW taking to accommodate sidewalk relocation will result. No parking spaces will be acquired.

**I-96 and M-21 (Fulton Street) Interchange:** A new I-96 westbound off-ramp and new I-96 eastbound on-ramp will be added. Additional ROW impacts are located in the southeast quadrant of the interchange. A single family residential property will be acquired as a total take. The parcel extends from M-21 to the I-96 ROW.

**I-196 at I-96 Interchange:** The I-96 freeway will be widened from the current seven lanes to nine lanes, with the collector/distributor roads and weave/merge lanes adjacent to the freeway mainline to provide interchange access between Leonard Street and Cascade Road. New ramps will also be added at the I-96/I-196 junction. The Leonard Street Bridge will be widened to five lanes. ROW impacts are located on the east side of I-96 between M-44 and Leonard Street. ROW acquisition is anticipated to be a narrow strip of less than two acres. The property is owned by Spectrum Health. Most of the area to be acquired is vacant land. Impacts to an existing parking area for an existing clinic will be minimal.

### **Mitigation**

All ROW will be acquired in accordance and compliance with Act 31, Michigan P.A. 1970; Act 227, Michigan P.A. 1972; Act 85, Michigan P.A. 1980, as amended; and the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. MDOT will inform individuals, businesses and non-profit organizations of any project impacts to their property. Every effort will be made through

relocation assistance to lessen the impact when it occurs.

## **2.2 INDIRECT AND CUMULATIVE IMPACTS**

Since the proposed project involves improving the existing freeway mostly within the existing ROW, any indirect (secondary) impacts would only be likely at the interchange improvement areas or along the East Beltline segment. As the area is urban and mostly developed, redevelopment of existing commercial, industrial and residential areas are more likely since new development possibilities are very limited. The future land use and zoning maps generally retain the same designations as the existing maps. Therefore, no change in land uses, with the possible exception of density of residential development, would be anticipated from any post-construction redevelopment activities.

The increase in impervious surface and associated increase in runoff is also an anticipated indirect impact. See the Water Quality discussion in Section 2.16. Temporary impacts to the linear park along the Grand River and the detour during construction are discussed in Section 6, Programmatic Section 4 (f) Evaluation.

The Grand Rapids metropolitan area has grown dramatically due to the influence of many major developments over the years. Some past and present projects that have contributed to growth in this metro area include: Grand Valley State University downtown campus, DeVos Place Convention Center, the Van Andel Arena and Museum, the Gerald Ford Presidential Library and Museum, Van Andel Institute, Spectrum Health Hospital and other area hospitals and medical facilities along the Life Sciences Corridor, Kent County government offices, the reconstructed S-curve, M-44, M-45 and the new Southbelt freeway (M-6), the new I-96/36<sup>th</sup> Street interchange, Meijer Botanical Gardens, numerous colleges, public and private schools, Gerald R. Ford International Airport, the Steelcase Industrial Complex, the Rivertown Crossing and other area malls, the John Ball Zoo, and Millennium Park. Other proposed highway projects required to accommodate on-going growth and development include improvements on US-131 between Ann Street and West River Drive, US-131 reconstruction from West River Drive to Rockford, the I-196 at Chicago Drive (Baldwin Street) interchange modification EA, and the Grand Rapids Major Transit Investment Study (GT2).

Compared to the No Build Alternative, the preferred alternative will contribute to the continued success of the Grand Rapids metropolitan area, including the redevelopment of the core downtown area of Grand Rapids. The No Build Alternative would result in continuing decline of the roadway and bridges serving the area, traffic operations, safety issues, as well as increased congestion and maintenance on the existing freeway system. These negative impacts along with the related travel delays would likely contribute to the decline of the area economy.

## **2.3 LAND USE**

The existing land uses adjacent to the I-196/I-96 freeway system and the East Beltline segments within the study area include commercial, residential, and industrial uses.

There is limited land available for additional development in the project area. The existing zoning reflects these uses. The future land use plans and future zoning maps for Grand Rapids and Grand Rapids Township continue the same patterns of development. The proposed improvements to the roadway and bridges are consistent with these plans. The majority of ROW that is needed for this project is zoned commercial and will be converted to transportation land use as a result of the proposed improvements.

## **2.4 SOCIAL IMPACTS**

The proposed project will not cause any long-term negative impacts on low-income, minority, ethnic, elderly or handicapped groups, or on area schools, churches or emergency services. No neighborhoods within the project area will be permanently separated from community facilities or services. Temporary impacts to a non-motorized trail (which is discussed in Section 6 Programmatic Section 4(f) Evaluation) and existing sidewalks, along with traffic disruptions will occur during construction. Access for motorists, non-motorized users and emergency vehicles will be maintained during construction.

MDOT will coordinate with local officials in providing updated information to assist all motorists including emergency vehicles and school buses in selecting the best route to use during construction.

## **2.5 ENVIRONMENTAL JUSTICE**

The purpose of Executive Order 12898 on Federal Actions to Address Environmental Justice in Minority and Low-income Populations is to identify, address, and avoid disproportionately high and adverse human health or environmental effects on minority and low-income populations. The proposed improvements will not cause disproportionately high and adverse human health or environmental effects on minority and low-income populations.

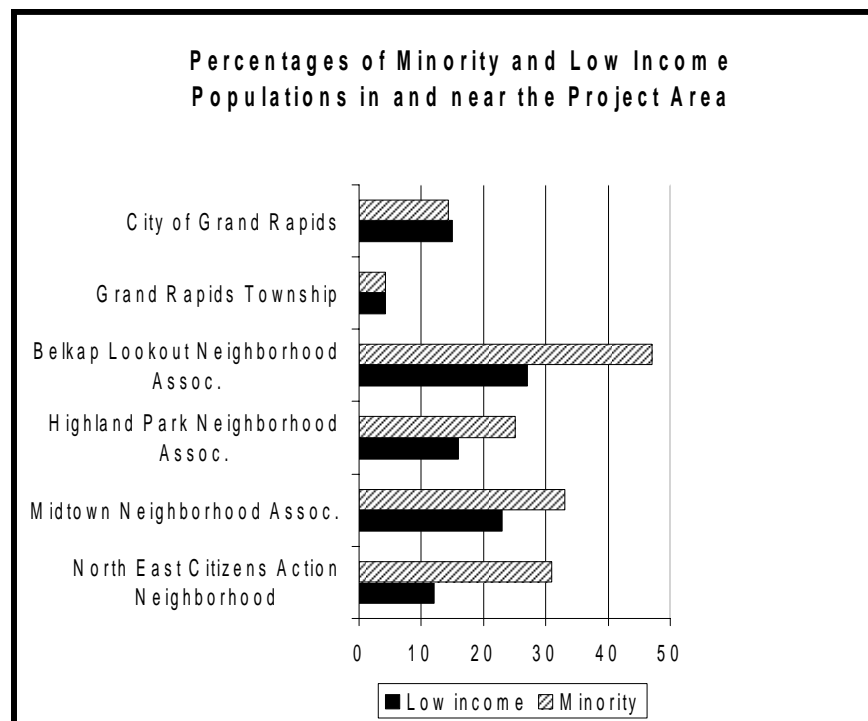
An analysis of the U.S. Census data for 2000 along with field reviews of the project area determined the presence of minority and low-incomes populations within the project area (see Figure 2.1). The minority population in the city of Grand Rapids and Grand Rapids Township is 14.3 percent and 4.2 percent respectively; while the percentage of individuals below the poverty level is 15.0 percent and 4.2 percent respectively. However, the four neighborhoods that are adjacent to the project area have a higher minority population; and three of the neighborhoods have a higher percentage of individuals below the poverty level. The four neighborhoods include the Belknap Lookout Neighborhood Association, Highland Park Neighborhood Association, Midtown Neighborhood Association, and the North East Citizens Action Neighborhood. The minority populations in these four neighborhoods ranged from 25 percent in the Highland Neighborhood to 47 percent in the Belknap Neighborhood. The percentage of individuals who are below the poverty level in these four neighborhoods range from 12 percent in the North East Citizens Action Neighborhood to 27 percent in the Belknap Neighborhood.

Although there will be temporary impacts such as delays in travel times during construction, the proposed improvements will provide for a safer freeway system by alleviating congestion, and improving traffic flow, and providing better access to local roads.

MDOT has held several meetings with local officials and an informational meeting for the public to solicit input from potentially affected stakeholders and property owners. A public hearing will be held after the Environmental Assessment has been approved by FHWA for public review and comments.

The proposed project will not displace or cause disproportionately high and adverse impact on minority or low-income populations within the project area. However, a continuing effort will be made to identify any additional impacts that may have a disproportionately high and adverse effect on minority and low-income population during subsequent phases of this project. If additional impacts are identified, every effort will be made to actively involve the impacted groups in the project development process.

Figure 2.1



## 2.6 MAINTAINING TRAFFIC

During the proposed improvements to the I-196, I-96 and M-37/M-44 (East Beltline) freeway system, MDOT has developed a plan to maintain at least one lane of traffic in each direction. However, there may be short periods when MDOT may need to detour traffic onto local streets, and/or other state highways during various stages of

construction. Updates on construction progress will be available to the public at [http://www.michigan.gov/mdot/0,1607,7-151-9621\\_11058\\_32151--,00.html](http://www.michigan.gov/mdot/0,1607,7-151-9621_11058_32151--,00.html).

A component of the Maintaining Traffic Plan (MTP) will be the development and implementation of a Motorist Information Plan (MIP). The MIP will include electronic message signs along I-196, I-96, and M-37/M-44 (East Beltline) informing motorists that travel lanes have been reduced to one lane in each direction and that alternative routes are available. The message signs will also inform motorists and non-motorists users that local access to residences and businesses within the project area is being maintained during construction.

Final MTP's will be developed in coordination with the city of Grand Rapids and other local agencies during subsequent project design phases. At that point, costs, schedules, user impacts, and more detailed options will be evaluated.

## **2.7 CULTURAL RESOURCES**

**Historic Resources.** MDOT consulted with the State Historic Preservation Office (SHPO) to determine an Area of Potential Effect (APE) for above-ground historic resources. The APE included all proposed intersection work and road improvements depicted on the *Conceptual Long Range Master Plan for I-196 and I-96* within the project area. MDOT conducted a survey of all structures within the APE and focused on buildings and bridges older than 50 years to determine if any might be eligible for listing on the National Register of Historic Places.

According to the National Register criteria, a building must be at least 50 years or older and retain integrity of location, design, setting, materials, workmanship, feeling, and association. Furthermore, at least one of the following additional criteria must be met: A) association with a significant event; B) association with the lives of significant persons; C) embody the distinctive characteristics of a type, period or method of construction, or represent the work of a master; or D) have yielded or may be likely to yield information important in history or prehistory.

The survey, which was accepted by the SHPO, identified three National Register-eligible properties within the APE. The former Ionia Avenue Mission Hall at 737 Ionia Avenue, NW, 523 College Avenue, and 529 College Avenue are all identified on Figures 2.2 and 2.3. The latter two buildings are not individually eligible for listing, but are contributing residences within the potential Belknap-Lookout Historic District.

The Ionia Avenue Mission Hall served an important role in the surrounding Coldbrook residential neighborhood through the 1960s when the majority of the homes were replaced by industrial buildings. After the Mission Hall was constructed in late 1923 or early 1924 by the Coldbrook Christian Reformed Church, the building was used for a variety of community activities like children's sewing and drawing lessons, Sunday School classes, and even as a welfare station during the Great Depression in the 1930s. Today the Mission Hall stands as one of the earliest intact examples of this building type associated with the Christian Reformed Church in Grand Rapids.

Figures 2.2 and 2.3 were removed from this electronic document. Please refer back to the webpage table of contents for a link to Figures 2.2 and 2.3.

The Belknap-Lookout Historic District is an area roughly bounded by Division Avenue to the west, Leonard Street to the north, College Avenue to the east, and Michigan Street to the south. This neighborhood is a mixture of single-family residences and some duplexes built between 1870 and 1920 with the Coit School as its centerpiece. The two residences at 523 and 529 College Avenue are located at the extreme southeastern corner of the potential District. These two residences, because they are the closest to the College Avenue intersection, were reviewed in the MDOT survey. Although neither home meets the National Register-criteria on an individual basis, both houses do contribute to the larger potential District. Each residence remains a good example of working-class housing built in the 1880s during the first wave of construction in the neighborhood.

The SHPO was provided with information about the anticipated impacts of the Project on the Ionia Avenue Mission Hall and the potential Belknap-Lookout Historic District. The new configuration of Ionia and Division Avenues near the Mission Hall will not alter the existing relationship between the building and the street itself. Likewise, design options considered for the College Avenue intersection do not alter the area near 523 and 529 College Avenue. Therefore, according to a letter from the SHPO dated March 11, 2005 and included in the Appendix E (Early Coordination Letters and Responses), the project will have no adverse effect on the identified historic properties.

**Archaeological Resources.** During the initial review of this undertaking, the potential for encountering both historic and prehistoric archaeological resources was assessed and determined to be moderate to low. Therefore, following review of the APE, and in consultation with the SHPO, it was determined that one location at 3840 Fulton Street, S.E., Grand Rapids, required an on-site survey to assess its archaeological potential. The subsequent archaeological survey and site evaluation was performed by MDOT archaeologists. As a result of this study, one new site was located and its eligibility was assessed for listing in the NRHP. The site had Native American prehistoric components and historic components. Following review of the study's findings, and in consultation with the SHPO, it was determined that site is not NRHP-eligible (SHPO letter, December 17, 2004 can be found in Appendix E). Therefore, for archaeological resources, there are no historic properties affected by this undertaking.

The project team issued an early coordination letter July 19, 2004 to all federally-recognized Tribes, and one state-recognized Tribe, to seek input and to request identification of any areas of concern regarding the scope of work for the undertaking. There were no responses from any Tribe identifying issues related to the undertaking and no requests to engage in government-to-government Consultation. Since then, neither archaeological nor historic above-ground surveys have revealed any information necessitating or requiring Agency/State/Tribal governmental consultations. Therefore, as pertains to this undertaking and the EA, the federal and state requirements for Native American Consultation have been fully executed and are complete.



## 2.8 AIR QUALITY

Under the direction of the Clean Air Act (CAA) as amended in 1990, the U. S. Environmental Protection Agency (EPA) has established health-based National Ambient Air Quality Standards (NAAQS) for six pollutants. These six “criteria” pollutants are lead (Pb), ozone (O<sub>3</sub>), sulfur dioxide (SO<sub>2</sub>), nitrogen dioxide (NO<sub>2</sub>), carbon monoxide (CO), and particulate matter (PM<sub>10</sub>, 10-micron and less, and PM<sub>2.5</sub>, 2.5 micron and less).

Transportation air quality analysis consists of two parts: confirmation of conformity to the NAAQS, and microscale or “hot-spot” analysis for carbon monoxide (CO) dispersion. The EPA determines the conformity status for designated areas based upon air pollutant monitors’ data readings over a period of time. A region that is not in conformity with the NAAQS for a specific pollutant is designated to be in “non-attainment” for that pollutant.

The I-196/I-96 and M-37/M-44 corridor is located entirely within Kent County. On June 15, 2004, the EPA designated Kent County to be in non-attainment for 8-hour ozone. An area comes into non-attainment for the 8-hour ozone standard when the 3-year average of the annual daily 8-hour average at each monitor exceeds the NAAQS of 0.08 ppm (parts per million). The area is in attainment for all other NAAQS designated pollutants.

Ozone is a regional pollutant created through a chemical reaction with a mix of volatile organic compounds (VOC), nitrogen oxides (NO<sub>x</sub>), and sunlight. Its effects are addressed by including it in the GVMC MPO Long Range Transportation Plan (LRTP) and Transportation Improvement Program (TIP) in compliance with the CAA and Federal Regulations 40 CFR 51 and 93. The GVMC is the MPO that includes Grand Rapids, Kent County and the eastern part of Ottawa County. One of their responsibilities is to carry out all transportation related planning activities for its designated area and to ensure that the transportation project adheres to the Final Conformity Rule for air quality so that such activities would not:

- Cause or contribute to any new violation of any NAAQS in any area;
- Increase the frequency or severity of any existing violation of any NAAQS in any area; or
- Delay timely attainment of any NAAQS or any required interim emission reduction or other milestones in any area.

The Air Quality conformity analysis for the Preferred Alternative in this EA was completed using the MPO travel demand model (sub-set of the statewide model) and the MOBILE6.2 emissions model, and it was determined that the project conforms to the CAA Final Conformity Rule. It was subsequently approved by the MPO on October 6, 2005. The MPO LRTP amendment for the Preferred Alternative was also approved by the MPO on October 6, 2005. These actions are currently being processed through the FHWA, Federal Transit Administration, and the United States EPA as required. Committed phases of the project are currently in the fiscal year 2006-2008 MPO TIP.

A microscale or “hot-spot” dispersion analysis was done for CO impacts. CO is a localized pollutant in that the negative health impacts quickly dissipate over distance.

The analysis focuses on areas close to the roadway where an unhealthy buildup of CO can occur and have an impact on human activities such as walking and biking. Intersections are typically targeted for analysis because lengthy traffic queuing can increase CO concentrations to unhealthy levels. Dispersion analysis takes into account meteorological factors such as wind direction to determine the point of highest CO concentration around a chosen roadway or intersection.

Microscale analysis was done by selecting the worst-case conditions where the most congested traffic volumes and roads may produce high concentrations of CO, based on meteorological conditions and the configuration of the roadway. The identification of the worst-case conditions is based on the level of service (LOS) and the total traffic volumes in the area. LOS is ranked from A to F where LOS A represents free flow operations and LOS F represents lanes of vehicles barely moving. A microscale analysis is required by 40 CFR 93.123 in areas where LOS D is predicted. 40 CFR 93.123 also states that the top three worst-case areas can be modeled to represent the project's CO impacts.

The intersection analyzed based on highest LOS and traffic volumes are:

- M-44/Leonard Street
- I-96 at M-37/M-44
- I-196/Fuller Avenue (both North and South)

A microscale analysis for CO was done for existing, 2030 no-build, and 2030 build scenarios. Motor vehicle emission factors for CO were obtained from the EPA approved MOBILE6.2 emission modeling software. The CO emission data was input into EPA approved CAL3QHC dispersion modeling software to determine concentrations around the selected intersections. Points or receptor locations were placed around the intersections and along the roadway where queuing will happen (see Figures 2.4, 2.5, and 2.6 for locations in the Figures Section). The following is data put in CAL3QHC for meteorological conditions and input parameters:

- Stability Class: D (stable atmosphere)
- Wind Speed: 1m/s (2.2 mph)
- Wind Direction: 10° increments, then refined to 1° increments
- Mixing Height: 1000m (3281 ft)
- Surface Roughness: 108 cm (3.54 ft)
- Saturation Flow Rate: 1800 vehicles/hour

Background concentrations were added to the results of the CAL3QHC to determine the total impact of CO. Background concentration is defined as the concentration of a pollutant at a point that is the result of emissions outside the local vicinity; the concentration at the upwind edge of the local sources. Background concentrations of 4.7 parts per million (ppm) for the 1-hour standard and 3.1 ppm for the 8-hour were used for this analysis. Following MDOT guidance, these data were obtained as the maximum second highest concentrations measured at the Grand Rapids (Monroe Avenue) monitor in Kent County between 2001 and 2003.

The maximum concentrations of the CO modeling results are illustrated in Table 2.1. The 8-hour CO concentrations were calculated by applying a persistence factor of 0.7 to the predicted 1-hour concentrations in accordance with MDOT and EPA guidelines. The full list of receptors and their maximum modeled concentrations are presented in the *Air Quality Analysis Technical Report* which is available for review upon request.

The maximum CO concentrations for the 2030 No Build scenario are 9.1 ppm for the 1-hour averaging period and 6.2 ppm for the 8-hour averaging period. The maximum CO concentrations for the 2030 Build scenario are 9.9 ppm for the 1-hour averaging period and 6.7 ppm for the 8-hour averaging period. All maximum CO concentrations occurred at Receptor 1, the northeast quadrant of the M-44/Leonard Street intersection. Based on these results, the planned improvements to I-196/I-96 and M-37/M-44 are not expected to cause or contribute to a violation of NAAQS for CO.

**TABLE 2.1 CO MICROSCALE ANALYSIS MAXIMUM CONCENTRATIONS**

<b>INTERSECTIONS</b>	<b>1-HOUR (ppm)</b>			<b>8-HOUR (ppm)</b>		
	<b>Existing</b>	<b>No Build</b>	<b>Build</b>	<b>Existing</b>	<b>No Build</b>	<b>Build</b>
M-44/ Leonard St.	9.7	7.7	7.8	6.6	5.2	5.3
EB I-96 Ramps/M-37	12.2	9.1	9.9	8.4	6.2	6.7
I-196/Fuller Ave	10.7	8.5	8.2	7.3	5.8	5.6

Source: I-196/I-96 & M-37/M-44 Environmental Assessment Air Quality Analysis, URS, January 27, 2005. ppm = parts per million - NAAQS for CO: 1-hour = 35 ppm, 8-hour = 9.0ppm

The construction phase of the proposed project has the potential to impact local ambient air quality by generating fugitive dust through activities such as demolition and materials handling. Construction contractors will comply with all federal, state, and local laws, regulations and rules governing the control of air pollution during construction of the I-196/I-96 and M-37/M-44 project. Dust will be controlled during construction to avoid detrimental impacts to the safety, health and welfare, or comfort of any person, or damage to any property or business by such methods as ground watering and careful control of stockpiles of raw materials. There will be no open burning of waste materials.

## Analysis Summary

Results from the CAL3QHC dispersion modeling analysis indicates that the proposed changes to the I-196/I-96 & M-37/M-44 corridor could be built and operated such that traffic CO emission levels at the nearby intersections would not cause an exceedance of the CO NAAQS. The impact of one intersection on another is minimal. Based on these model runs, both the one-hour and eight-hour modeled concentrations at the three worst-case signalized intersections would be well below the NAAQS for CO and all areas would be considered to be in compliance.

As previously discussed, the air quality conformity analysis and LRTP amendment were recently approved by the Grand Rapids MPO. Federal action on the plan amendment and air quality conformity finding will be included with the FONSI issued for this project.

The detailed examination of the existing air quality conditions, regulatory requirements, methodologies used to conduct the analysis and the results are presented in *Air Quality Analysis Technical Report* which is available for review upon request.

## 2.9 NOISE

Noise is defined as unwanted or annoying sound. Sound levels are measured and expressed in decibels (dB). The decibel scale is logarithmic and expresses the ratio of the sound pressure unit being measured to a standard reference level. Most sound heard in the environment does not consist of a single frequency, but rather a broad band of frequencies differing in sound level. The intensities of each frequency add to generate sound. The method commonly used to quantify environmental sounds consists of evaluating all of the frequencies of a sound according to a weighting system, which reflects that human hearing is less sensitive at low frequencies and at extremely high frequencies than at the mid-range frequencies. This is called “A” weighting, and the decibel level measured is called A-weighted sound level (dBA). “A” weighting most closely represents the response of the human ear to sound. In practice, the level of a noise source is measured using a sound level meter that includes a filter corresponding to the dBA curve.

Although the A-weighted noise level may adequately indicate the level of environmental noise at any instant in time, community noise levels vary continuously. Most environmental noise includes a conglomeration of noise from various sources, including relatively steady background noise in which no particular source is identifiable. To describe the time-varying character of traffic noise, a statistical noise descriptor called the  $L_{eq(h)}$  (equivalent hourly sound level) is commonly used.  $L_{eq(1h)}$  describes a noise sensitive receiver’s cumulative exposure from all noise-producing events over a one-hour period. Noise sensitive receivers are locations that may be subject to interference from noise. They often include picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.

Federal regulation 23 CFR Part 772 establishes Noise Abatement Criteria (NAC) for various land uses, dividing activities into five categories. MDOT has adopted these activity categories and NAC. The five categories are shown in Table 2.2.

**Table 2.2 Noise Abatement Criteria (NAC)**

Activity Category	NAC, L <sub>eq</sub> (1h)	Description of Activity Category
	dBA	
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 (Exterior)	Developed lands, properties, or activities not included in Categories A or B above.
D	--	Undeveloped lands.
E	52 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches libraries, hospitals, and auditoriums

Source: Code of Federal Regulations: Title 23 part 772

MDOT policy considers there to be noise impacts if the traffic noise approaches or exceeds the NAC standard which for Category B is 67 dBA, or if there is an increase of 10 dBA over the existing sound levels. MDOT considered 66 dBA to be an impact for Category B properties.

A noise analysis was done following procedures established in 23 CFR Part 772, FHWA's *Highway Traffic Noise Analysis and Abatement Policy* (June 1995), and MDOT's *Procedures and Rules for Implementation of State Transportation Commission Policy 10136 – Noise Abatement* (MDOT, 2003). FHWA's software traffic noise model (TNM2.5) was used to determine existing (2004) and predict future (2030) noise levels.

In order to evaluate the potential for sound level impact for the study area, noise sensitive areas (NSA) were identified throughout the study area. The NSAs were identified based on the FHWA criteria and include single family residences, a hospital, schools, recreation areas and one private golf course. For this project, twenty-seven NSAs have been identified throughout the study area. The locations of the NSAs can be seen in Figure 2.7 in the Figures Section.

Measurement of the ambient noise levels is required to establish the basis of impact analysis. One-hour noise measurements were conducted between September 20 and 23, 2004. These sites were selected to provide representative sound levels for each NAS in the study area. One-hour noise measurements were performed and classified vehicle counts were collected for calibration of the traffic noise model, FHWA approved TNM2.5. The Complete Noise Receptor Monitoring Profiles, which include descriptions,

site sketches, weather data, and classified vehicle counts for each noise-monitoring site, are presented in the *I-196/I-96 and M-37/M-44 Highway Noise Analysis Technical Report*. This noise report is available for review upon request.

A total of 193 receptors were included to provide complete coverage of the NSAs in the study area. See Appendix F (Comparison of Existing and Predicted Noise Levels) for the existing and projected noise levels by receptor. The receiver locations provide a full representation of the study area and the NSAs. Existing measured noise levels ranged from a low of 50.0 dBA at Receiver 20-01 in NSA 20 to a high of 72.7 dBA at Receiver 9-M18 in NSA 9. Predicted noise levels were modeled using FHWA's TNM2.5. This model takes into account traffic volumes, vehicle types, vehicle speeds, roadway locations, screening provided by buildings, terrain features, and noise sensitive receiver locations to calculate future traffic generated noise levels. Predicted levels ranged from a low of 45.7 dBA at Receiver 22-03 in NSA 22 to a high of 75.4 dBA at Receiver 1-M01 in NSA 1. Figure 2.8 illustrates the general locations of the monitored and modeled receptor sites, and indicates which receptors would be impacted. Figure 2.8 can be found in the Figures Section.

There are no receivers impacted by a substantial increase of 10 dBA or more. However, the analysis predicts that 17 NSAs will have noise levels equal to or greater than the 66 dBA for the future year (2030) scenario. Table 2.3 lists the impacted noise sensitive areas (NSA), and the corresponding receivers.

**Table 2.3**  
**IMPACTED NOISE SENSITIVE AREAS**

<b>Noise Sensitive Areas</b>	<b>Community</b>	<b>Receiver Impacted</b>	<b>Number of Impacted Dwelling Units</b>
1	North of I-196, residences between Coit and Lafayette Avenues	1-M03	10 Residences
2	South of I-196, residences along Benson Avenue	2-M05, 2-01	5 Residences
3	Apartment buildings and park north of I-196 between College and Grand Avenues	3-01, 3M07, 3-03, 3-04	8 Apartment units 10 Dwelling units representing the park
4	South of I-196, residences between railroad and Diamond Avenue	4-M09, 4-M10	8 Residences on western side 6 Residences on eastern side
5	North of I-196, residences between Grand and Diamond Avenues	5-M08, 5-M13	12 Residences on western side 18 Residences on eastern side
8	North of I-196, Hospital and Jail between Fuller and Ball Avenues	8-02	Kent County Jail Complex
9	North of I-196, townhouses between Ball and Plymouth Avenues	9-M17, 9-M18, 9-01, 9-02	24 Townhouse units
10	North of I-196, townhouses in northeast quadrant of Plymouth Avenue with I-196	10-M19, 10-M20, 10-01	26 Townhouse units
12	Residences in southwest quadrant of I-96 and Leonard Street	12-M21	1 Commercial property
14	Residences in northwest quadrant of I-96 and Leonard Street	14-02	3 Residences
16	Commercial and residences in northeast quadrant of I-96 and I-196 interchange	16-01	1 Commercial property
17	Residences in northeast quadrant of I-96 and East Beltline Avenue	17-01	1 Residences
18	Residences in southwest of I-96 between railroad and M-21 (Fulton St.)	18-05, 18-06	6 Residences
21	Cascade Country Club	21-M45	Private golf course
23	Residences west of M-37 (East Beltline) between M-21 (Fulton St.) and Cascade Road	23-03, 23-04	6 Residences
25	Church and Cornerstone University, west of M-44 (East Beltline) and south of Leonard St.	25-M37, 25-01	10 Dwelling units representing Cornerstone University
27	Residences west of M-44 (East Beltline) and north of Leonard St.	27-01, 27-04, 27-05	12 Multi-family units

MDOT policy requires all impacted properties to be examined for possible noise abatement. The typical MDOT method for noise abatement is the construction of a noise barrier or wall. The noise wall must meet the standards of feasibility and reasonability before construction would be considered. Feasibility is an engineering requirement looking at construction, safety and maintenance issues and the capability to obtain the required 5 dBA reduction in traffic noise impacts. Reasonability focuses on the economic aspects such as cost effectiveness in constructing the wall and financial agreements with local jurisdictions with regard to maintenance, land use policy, and funding participation. MDOT has calculated the cost to build a typical concrete noise wall to be about \$500 per linear foot (\$23.77 per square foot for above ground wall structure plus \$219.60 per linear foot for foundation). This cost is compared to MDOT's designated cost per benefiting unit of \$35,696 (2005 dollars). The total cost of the noise wall construction must be below the per benefit dwelling unit cost to be considered reasonable. TNM2.5 has the capability to calculate the cost per benefit dwelling unit and was used to determine the reasonability.

Ten locations were considered to be feasible for noise walls. Table 2.4 below details the costs of construction compared to the per benefit dwelling unit cost.

**TABLE 2.4 PROPOSED NOISE ABATEMENT AND COST PER BENEFITED DWELLING UNIT**

Noise Sensitive Area	Approximate Length (ft)	Height (ft)	Area (ft <sup>2</sup> )	Cost	Benefited Dwelling Units	Cost Per Benefited Dwelling Unit
1	576	20	11,522	\$400,382	10	\$40,038
2 and 4 west	1392	16-20	24,195	\$880,835	13	\$67,756
3 and 5 west	1966	16-20	34,523	\$1,252,297	30	\$41,743
4 east	672	16-20	12,672	\$448,802	6	\$74,800
5 east	1199	16	19,191	\$719,779	18	\$39,987
9	1296	24	31,093	\$1,023,579	24	\$42,649
10	1680	16	26,872	\$1,007,567	26	\$38,753
17	390	14	5,465	\$215,640	1	\$215,640
18	920	12-18	14,723	\$552,032	6	\$92,005
27	200	18	3,602	\$338,109	4	\$84,527
	300	20	6,001			

Source: I-196/I-96 & M-37/M-44 Environmental Assessment Highway Noise Analysis (URS, January 25, 2005)

All of the noise walls proposed have a per benefited dwelling unit cost above MDOT's designated per benefited dwelling unit cost of \$35,696 (2005 dollars). No NSA meets the criteria for feasibility and reasonability. Therefore, mitigation is not recommended for further consideration for any of the impacted NSA's.

### Analysis Summary

Twenty-seven NSA's have been identified throughout the study area based on the proposed improvements for I-196/I-96 and M-37/ M-44. The NSA's include single-



family residences, schools, hospitals, and one privately owned golf course. The FHWA TNM analysis indicates that 17 NSAs will have noise levels equal to or greater than 66 dBA for the future year (2030) scenario. No modeled receptors experienced a substantial increase of 10 dBA or more.

Mitigation measures were considered for each of the impacted areas, and noise abatement walls were considered where feasible and reasonable. Noise abatement is considered feasible and reasonable if the wall is buildable, can reduce traffic noise levels by 5 dBA or more, and the estimated cost per residence is at or below \$35,696 (2005 dollars). For each of the 17 NSAs impacted, none received a cost per benefited residence below the MDOT criteria of \$35,696 (2005 dollars). Therefore, mitigation is not recommended for further consideration for any of the impacted NSA's. If local government or private funding becomes available for noise abatement, MDOT will re-evaluate noise mitigation for this project.

The detailed traffic noise analysis information, TNM tables, and more details on the noise impacts on the NSAs are found in *I-196/I-96 & M-37/M-44 Environmental Assessment Highway Noise Analysis Technical Report* which is available upon request for review.

## **2.10 FARMLAND**

Based on a review of the land use and zoning maps, site inspections, and coordination with the city of Grand Rapids and Grand Rapids Township, there are no parcels currently zoned for agriculture or forestry and no active farmlands are present within the project area. Therefore, no additional coordination with United States Department of Agriculture (USDA)/ Natural Resources Conservation Service (NRCS) will be required under the Federal Farmland Protection Policy Act (FPPA).

The Part 361 of Michigan Public Act 451, Natural Resources and Environmental Protection Act of 1994 (previously known as PA 116), database was reviewed, and it was determined that no parcels enrolled under the State of Michigan Farmland and Open Space Preservation Program will be impacted by this project.

Kent County has a Purchase of Development Rights (PDR) program for preserving farmlands. It is a voluntary program that compensates owners of agricultural properties for their willingness to accept a permanent deed restriction on their land that limits future development of the land for non-agricultural purposes. No properties within the study limits are in the PDR program or in the areas targeted for agricultural preservation.

## **2.11 CONTAMINATED SITES**

A Project Area Contamination Survey (PACS) was performed by the MDOT. The PACS included a review of Michigan Department of Environmental Quality files, interviews and two site visits. The proposed construction of I-196 through Grand Rapids and extending over the Grand River will be mostly within the existing ROW. Elevated portions of the freeway pose no significant contamination issues from adjacent property.

At the Fuller Avenue interchange, I-196 is at or below existing grade. The north side of this area is residential and poses minimal risk from contamination. The south side and east of Fuller Avenue is an industrial area where contamination may exist. If any excavation activities occur on Fuller Avenue or the east bound entrance ramp a re-evaluation of the contaminated sites section should be made when preliminary plans are completed to determine if any testing is necessary in this area. There is also the possibility of contamination near interchanges if excavation activities occur beyond the interchange ramps. Overpass bridges may also contribute to possible lead contamination in the soils around the bridges. At the southwest corner of East Beltline (M-44) and Leonard Street there is an Amoco gasoline station that is a known site of contamination for leaking gasoline tanks. There are monitoring wells within the existing ROW that will need to be removed and abandoned properly.

### **Mitigation**

When preliminary plans are completed additional review may be needed in the areas where ROW will be purchased. Overpass bridges will be evaluated for lead if any construction or excavation will occur on, near or under the bridges. If any excavation activities occur on Fuller Avenue or the eastbound entrance ramp to I-196, a re-evaluation of the contaminated sites section should be made when preliminary plans are completed to determine if testing is necessary in this area. Interchanges will need to be evaluated when preliminary plans are completed. If any excavation activities occur beyond the interchange ramps it may be necessary to conduct testing to determine if any contamination exists within MDOT ROW. Monitoring wells within the existing ROW will need to be properly abandoned and removed. An evaluation may be needed for new utility cuts through contaminated areas. Additional testing may also be needed, especially on the sites that have been identified as having potential impact on the project. The testing should be able to determine if contamination exists and the concentration of any contaminants in the soil and groundwater. If no testing is conducted, miscellaneous pay items will be included for contaminated soil removal and disposal. All contaminated material will be disposed of properly.

River bottom sediments that will be excavated for the widening of the Grand River bridge piers will be tested prior to construction. This testing will determine contamination and the required disposal methods to be used.

A Risk Management Plan may need to be developed which includes a Worker Health and Safety Plan if contamination is found within the limits of excavation.

## **2.12 ENDANGERED AND THREATENED SPECIES**

Endangered and threatened species are officially protected by the State of Michigan's Natural Resources and Environmental Protection Act, Act 451 of the Public Acts of 1994, Part 365; and the Federal Endangered Species Act of 1973, as amended. An endangered species (E) under the Acts is defined as in danger of extinction throughout all or a significant portion of its range. A threatened species (T) under the Acts is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. Special Concern (SC) species are not afforded legal

protection under the Michigan Act but are of concern because of declining or relict populations within Michigan, or are species for which more information is needed. A candidate species is a species for which the U.S. Fish and Wildlife Service (USFWS) has sufficient information on their biological status to propose them as threatened or endangered under the Federal Endangered Species Act, but for which development of a proposed listing regulation is precluded by other higher priority listing activities.

A review of the USFWS 2005, Threatened and Endangered Species System for Michigan shows 13 animal species listed. The USFWS response letter (See Appendix E) indicates that none of these listed species is present within Kent County. This project was also checked against the Michigan Department of Natural Resources (MDNR) Michigan Natural Features Inventory (MNFI) database for the presence of state listed endangered and threatened species. (See Appendix E for MDNR letter). There are no federal or state listed threatened or endangered species, or any species proposed for listing, known to be present at the project site based upon database searches and field inspections. An historical occurrence of the Special Concern species Eastern Box Turtle (*Terrapene carolina carolina*) near the project location has been identified, though no turtles have been found during site surveys.

## **2.13 FISHERIES AND WILDLIFE**

The reach of the Grand River crossed by the I-196 bridge is classified by the MDNR as a warm water stream. Characteristic species of game fish include Largemouth Bass, Smallmouth Bass, Channel Catfish, and Northern Pike, along with Steelhead. Historical changes made to the stream bed in the form of dredging and stream bank stabilization by the use of seawalls have eliminated spawning and nursery areas associated with shallow, vegetated waters. Fish use in the project area is limited to passage upstream and downstream by use of fish ladders.

Observations of wildlife revealed no use of the bridge structure, including under the bridge, for breeding by any animal species. Use of the river for active foraging by waterbirds (waterfowl, herons, grebes, and gulls) was not observed on any site visit in the immediate vicinity of the bridge. No amphibian, reptile, or mammal species were observed in the immediate vicinity of the bridge structure. Wildlife cover and food resources are limited near the bridge and those terrestrial species observed are characteristic of urban environments (Rock Pigeon, *Columbia livia*; Chimney Swift, *Chaetura pelagica*; European Starling (*Sturnus vulgaris*), and House Sparrow, *Passer domesticus*).

Wildlife species were surveyed within 0.1 mile of the project ROW on eight dates during 2004 and 2005. A total of 37 vertebrate species were identified during these surveys, and an additional 10 species were encountered while conducting other project related work. Use of the existing ROW was observed for a small subset of these species- European Starling (*Sturnus vulgaris*), American Robin (*Turdus migratorius*), Red-tailed Hawk (*Buteo jamaicensis*), Meadow Vole (*Microtus pennsylvanicus*), Woodchuck (*Marmota monax*), and Green Frog (*Rana calmitans*). Animals associated with areas to be impacted by alternation of existing cover types at the locations of the new ramps will be impacted

directly by the loss of nesting or denning sites and foraging opportunities. None of the species observed within the project area represent uncommon or rare species with limited distributions within the state or region with the exception of one observation of a pair of Peregrine Falcons (*Falco peregrinus*) perched on a building along the Grand River south of the I-196 bridge crossing. No significant impacts to wildlife and fisheries resources will occur.

### **Mitigation**

No work shall be performed in the Grand River from March 1 through May 1 and September 15 through November 30 during peak spawning periods. Construction can occur during these times if done within a cofferdam to isolate the construction activities from the water.

## **2.14 STREAM CROSSINGS**

Stream and drain crossings within the project limits have been evaluated and recommendations made for the proper sizing of culverts to meet regulatory requirements (I-196/I-96 & M-37/M-44 Environmental Assessment, Highway Drainage Analysis Report, URS-January 27, 2005). The culvert sizing recommendations once carried through to construction will not create any adverse impacts due to backwater effects. Refer to Figure 2.9 in the Figures Section for a map of stream crossing locations. A summary of existing and proposed culvert dimensions is available in Table 2.5 below. These recommendations will be carried forward through the design process to address these concerns. Enclosure of about 70 feet of unnamed stream will occur within the I-96/I-196 interchange by use of culverts under the proposed new ramps. The inclusion of Detention Pond D within the interchange will also impact the stream at this location. Additional study and detailed design plans to be undertaken during a later phase of the project will provide more accurate estimates of possible impacts and their location.

**Table 2.5 Summary of Major Stream Crossings Within the Project Limits**

No.	Name of Watercourse	Drainage Area Reference No.*	Existing Dimensions	Proposed Dimensions
1	Forest Hills Office Pk. Dr.	N.A.	36" x 24"	48"
2	Unnamed Drain	48	29" x 42"	48"
3	Interchange Drain	43	48"	54"
4	Coldbrook Drain N. #2 A	42	48"	48"
5	Coldbrook Drain N. #2 B	41	24"	24"
6	Coldbrook Drain N. #2 C	41	72"	72"
7	Coldbrook Drain N. #2 D	40	48"	48"
8	Coldbrook Drain	N.A.	72" x 108"	72" x 108
9	Grand River	N.A.	N.A.	N.A.

\* Taken from I-196/I-96 & M-37/M-44 Environmental Assessment Highway Drainage Analysis, January 27, 2005

## **2.15 FLOOD PLAINS/HYDRAULICS**

The I-196/I-96 & M-37/M-44 EA *Highway Drainage Analysis Report* states that the proposed bridge expansion will have no significant permanent impact to the Grand River floodplain. The proposed project will require encroachment into the base floodplain of the Grand River based upon evaluation of Federal Emergency Management Agency/Flood Insurance Rate (FEMA/FIRM) maps. The city of Grand Rapids has identified an additional area near the study area as "Flood Prone". This identification has no relationship to floodplains as established by FEMA, but does serve to identify an area that has a history of short-term flooding problems.

Short-term impacts to the floodway will take place during construction of the bridge, and the extension (approximately 21 feet on each side) of the piers. Hydraulic modeling of the impacts based upon two construction methods were analyzed, one based on the use of barge supported equipment and the other using cofferdam with causeway access from the nearest shoreline based upon closure of half of the river at time. The depth of water directly adjacent to the bridge effectively eliminated use of a barge to carry material and

equipment heavy enough to lift these materials to the height required for construction and was therefore eliminated as a viable construction method. The use of a combination of cofferdam and causeway was selected as the most feasible and cost effective method of construction.

During design, a construction staging plan will be prepared to identify location, installation and removal stages. This staging plan will help minimize potential impacts to the floodplain, and will be implemented during the time in which the cofferdam and causeway are in place. The final design and elevation of the cofferdam and causeway will be completed by MDOT, and will be subject to review by MDOT and MDEQ prior to the permit application.

Long-term impacts to the Grand River are not expected to occur as the provision of the additional pier length to support the expanded bridge will not result in harmful interference at the 100-year base flood elevation.

The proposed project would not support incompatible floodplain development because it does not support development within the floodplain or alter existing access to the floodplain. The proposed project will maintain local and regional access to existing commercial and recreational facilities and is consistent with zoning and land use plans of the city of Grand Rapids.

The MDEQ effectively mandates that no change in flood stage should take place on adjacent properties. Given that the new structure will have a decrease of 0.12 feet in 100 Year flood elevation from the existing condition, no mitigation is anticipated based upon results obtained from the hydraulics model.

## **2.16 WATER QUALITY**

### **Watershed Description**

The project area is within the lower Grand River watershed. The lower Grand River watershed includes all of the subwatersheds in the Grand River drainage west of and including the Thornapple and Flat River watersheds. It is approximately 3,020 square miles within ten counties. Land use in the watershed is dominated by agricultural land usage and the Environmental Protection Agency (EPA) has categorized the riparian habitat of the lower Grand River as 25 – 50% forested. Urban land use within the watershed is concentrated in the major metropolitan area of Grand Rapids.

### **Watershed Issues**

The lower Grand River watershed includes one of the larger population and industrial centers in the State of Michigan; therefore there have been significant effects from human activity that have adversely impacted the watershed. Historically, the Grand Rapids area was known for large-scale metal finishing and plating industries that contributed significant amounts of heavy metals to the environment. Contaminated river bottom sediment has been identified throughout most of the main body of the Grand River (*U.S. EPA Preliminary Investigation of the Extent of Sediment Contamination in the Lower Grand River*).

Pursuant to the requirements of Section 303(d) of the Federal Clean Water Act, the MDEQ has listed 16 water bodies within the lower Grand River watershed as nonattaining. The Grand River has been listed for exceedances of fecal coliform values that exceed total body contact criteria. Primary sources of fecal coliform contamination include sanitary sewer overflows during heavy rain events and failing septic systems. The Coldbrook Drain, Heinkels Drain and several unnamed tributaries to the Grand River are within the project work area but are not listed by MDEQ as having impairments.

### **Project Impacts - Soil erosion and sedimentation control during construction**

Accelerated sedimentation caused by highway construction will be controlled before it enters a water body or leaves the highway ROW by the placement of temporary or permanent erosion and sedimentation control measures.

MDOT has developed a series of standard erosion control items to be included on design plans to prevent erosion and sedimentation. The MDOT has on file with MDEQ an approved operating erosion and sedimentation control program which ensures compliance with Part 91, Soil Erosion and Sedimentation Control of Act 451, as amended. The MDOT has been designated an “Authorized Public Agency” by the MDEQ and is self-regulated in its efforts to comply with Part 91. However, the MDEQ may inspect and enforce soil erosion and sedimentation control practices during construction to ensure that the MDOT and the contractor are in compliance with Part 91 and the acceptable erosion and sedimentation control program.

MDOT has developed a series of standard erosion control items to be included on design plans to prevent erosion and sedimentation. The design plans will describe the erosion controls and their locations. The following is a partial listing of general soil erosion and sedimentation control measures to be carried out in accordance with permit requirements.

- No work will be done in the Grand River channel during periods of seasonally-high water, except as necessary to prevent erosion.
- Road fill side slopes, ditches, and other raw areas draining directly into the Grand River (or other watercourses), will be protected with riprap (up to three feet above the ordinary high water mark), sod, seed and mulch, or other measures, as necessary to prevent erosion.
- Areas disturbed by construction activities will be stabilized and vegetated within five days after final grading has been completed. Where it is not possible to permanently stabilize a disturbed area, appropriate temporary erosion and sedimentation controls will be implemented. All temporary controls will be maintained until permanent soil erosion and sedimentation controls are in place and functional.
- The contractor shall have the capability of performing seeding and mulching at locations within 150 feet of any stream or drain within 24 hours of being directed to perform such work by the Project Engineer.

- Special attention will be given to protecting the natural vegetative growth outside the project's slope stake line from removal or siltation. Natural vegetation, in conjunction with other sedimentation controls, provides filtration of runoff not carried in established ditches.
- The contractor is responsible for preventing the tracking of material onto local roads and streets. If material is tracked onto roads or streets, it shall be removed.

### **Project Impacts - Post Construction**

The project will create new impervious area which will result in an increased rate of runoff and potentially increase pollutant contributions from sedimentation and other pollutants associated with roadways. Where feasible, drainage from the roads, approaches and bridges will be routed overland through vegetation or directed to detention basins. The use of detention and vegetated swales is expected to mitigate potential adverse water quality impacts associated with storm water runoff for most drainage within the project area with the exception of the drainage area between US-131 and Grand Rapids Eastern (GRE) Railroad bridges. Detention and treatment via overland flow is not feasible for the drainage area between US-131 and the GRE Railroad due to the existing land use. In-line detention will be evaluated and implemented where feasible within this drainage area to mitigate adverse water quality impacts, and when in-line detention is not feasible erosive flow rates will be mitigated by appropriate outfall stabilization.

The use of detention ponds has the potential to increase the temperature of storm water being discharged to the Grand River. However, temperature is not believed to be a pollutant of concern because the Grand River watershed is a warm water fishery and temperature standards for warm water fisheries are lowest for the months of December through March when minimal discharges will be occurring from the detention ponds. Furthermore, water that is discharged from the detention ponds will be cooled before reaching the Grand River as it is routed through subsurface storm sewers and vegetated swales. Temperature impacts are not expected for the drainage area between US-131 and Benson Avenue due to the planned below-ground drainage system.

Recommended mitigation for post construction water quality impacts includes maximizing use of vegetated swales for drainage conveyance; use of above ground/in-line detention and addressing all disturbed groundwater wells and sanitary sewer lines in accordance with local ordinances and community health department requirements.

## **2.17 WETLANDS AND WOODLANDS**

### **Wetlands**

Review of the U.S. Geological Survey East Grand Rapids topographical map and National Wetland Inventory (NWI) map was undertaken to identify known wetlands within the project area. This information was field verified, wetland boundaries were flagged, and the flagging was picked up by survey for inclusion on project base maps. The NWI map indicated no wetland at the I-196 Grand River bridge site or the I-96/M-21 ramp location. Unavoidable impacts to wetlands by the project will occur at several



locations. Approximately 1.21 acres of Palustrine Emergent Scrub-Shrub wetland and 0.29 acres of Palustrine Emergent wetland will be impacted at the I-196/I-96 interchange by the provision of new ramps. About 0.63 acres of Forested/Scrub-Shrub wetland will be filled for a new exit ramp to be located at westbound I-96 at M-21 (Fulton Street), and 0.05 acres of Palustrine Emergent Scrub-Shrub wetland will be impacted along the I-96 Mainline. Total unavoidable wetland impacts are estimated at 2.13 acres. For location of the impacted wetlands, refer to Appendix C. The following table (Table 2.6) summarizes the impacts.

**Table 2.6 - Summary of Wetland Impacts**

<b>LOCATION</b>	<b>TOTAL WETLAND IMPACTS* (ACRES)</b>	<b>Palustrine Emergent** (ACRES)</b>	<b>Palustrine Emergent Scrub Scrub ** (ACRES)</b>	<b>Palustrine Forested Shrub Scrub** (ACRES)</b>
I-96/I-196-Ramp A+B	1.45	0.29	1.16	None
I-96 Mainline	0.05	None	0.05	None
WB I-96/M-21	0.63	None	None	0.63
Total:	2.13	0.29	1.21	0.63

- Wetland impacts within project boundaries

\*\*Cowardin, Lewis, V. Carter, F. Golet, and E. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States.

### **Woodlands**

Mature, closed canopy Beech-Maple woods are located at the I-196/I-96 interchange. The woodland has been fragmented in the past by construction of the existing roadway, with a 0.79 acre area remaining in the median of I-96 and two fragments immediately to the west that are 2.05 and 0.21 acres in size. Direct impacts to these woodlands will result in the removal of all woodland within the median and loss of 1.65 acres (73%) of woodland west of the existing roadway for construction of proposed ramps A and B. For location of woodland areas, see Appendix C.

## **2.18 WETLAND MITIGATION**

### **Wetland Mitigation Requirements**

Wetland mitigation for unavoidable impacts is required through Part 303 (Wetland Protection) of Act 451, NREPA, and Section 404 of the Federal Clean Water Act. In Michigan, federal wetland regulatory authority has been delegated to the State, and the extent to which wetland mitigation is required for a project is dictated through the wetland permit process administered by MDEQ. The United States Army Corp of Engineers (USACOE) retains authority over United States Waters, including navigable rivers and adjacent wetlands. A permit will be required by MDEQ for impacts to wetlands associated with the Preferred Alternative for this project (see Section 2.17 for a detailed discussion of wetlands impacted).

Approximately 2.13 acres of wetland will be impacted by the construction of the Preferred Alternative for this project. The wetland types impacted include 0.63 acres of palustrine forested (PFO) and 1.50 acres of palustrine emergent (PEM) wetland (wetland classification based on Cowardin et al. 1979).

MDEQ requires wetland impacts to be mitigated at an acreage ratio of 2 to 1 for forested wetlands and 1.5 to 1 for emergent wetlands (MDEQ 2003). Based on these ratios this project will require 1.26 acres of forested and 2.25 acres of emergent wetland mitigation. Ratios for areas of exceptionally high quality or low quality may be adjusted on an individual basis upon review by the resource agencies during permitting.

### **Wetland Functions and Values**

A wetland functions and values assessment using the Highway Methodology (USACOE 1995) was conducted to document the primary functions of the wetlands impacted by this project. The primary functions of the wetlands that would be impacted by the Preferred Alternative are floodflow alteration, wildlife habitat, and sediment and toxicant retention. The function and value assessment also provides data for determining the wetland mitigation goals and functions that will need to be incorporated into the mitigation plans to compensate for unavoidable wetland impacts.

### **Wetland Mitigation Sites**

Based on MDOT's criteria for determining feasible wetland mitigation sites, the following site characteristics were determined to be important for the wetland mitigation sites proposed for the I-196/I-96 and M-37/M-44 project:

- Proposed mitigation sites should not be heavily wooded or existing wetlands,
- Mitigation should be in-kind and preferably within the same watershed as the impacts. It is also preferred that mitigation be accomplished in areas that were formerly wetlands, such as disturbed areas along the Grand River,
- Utilize prior converted historical wetland areas or land with a water table near the surface if feasible,
- The number of proposed wetland mitigation sites should be minimized while providing the full amount of required mitigation,

- Wetland mitigation sites should be compatible with adjacent land uses (e.g., not in a subdivision), and;
- The number of landowners at each site should be at a minimum.

Based on these criteria, a search has been conducted for potential wetland mitigation sites within the Grand River watershed and adjacent areas. Because the wetlands that would be impacted by this project are within the Grand River watershed, potential wetland mitigation sites within the Grand River floodplain were given priority. Sites within the floodplain are most likely to replicate the primary function, floodflow alteration, of the impacted wetlands. Wetland restoration of prior converted cropland was also given priority in the site selection process. "Prior converted cropland" is defined by the NRCS as, "wetlands that have been drained, dredged, filled, leveled, or otherwise manipulated, for agricultural use, before December 23, 1985, to the extent that they no longer exhibit important wetland values." Specifically, prior converted cropland is inundated for no more than 14 consecutive days during the growing Season. Creation of new wetlands by deep excavation was considered less desirable due to the uncertainty of existing groundwater and the potential excavation and hauling cost. In addition, all lands designated as Part 361 of Public Act 451, previously known as PA116 (Farmland and Open space Preservation Program), were excluded from the site selection process.

Letters were sent to the owners of potential wetland mitigation sites requesting consideration that portions of their properties be used for mitigation purposes. Only properties for which favorable written responses have been received from property owners were further examined for use as mitigation sites. The written responses received are legally non-binding and indicate only voluntary, tentative landowner participation.

Potential wetland mitigation sites were preliminarily identified from aerial photographs of the study area. Soil survey maps were also consulted regarding the presence of hydric soils or soils with hydric inclusions, which generally have been identified as hydric, poorly drained or very poorly drained in the Ottawa County Soil Survey. Sites located adjacent to large drains and other waterways were considered particularly suited to wetland mitigation. Also considered were the wetland mitigation design goals determined by the wetland function and value assessment, and best professional judgment. The wetland mitigation sites were cross-referenced with historical wetland maps to determine whether restoration of drained or otherwise altered wetlands is feasible.

The primary factor to ensure successful wetland mitigation is the presence or provision of adequate hydrology to support the wetland system. Both surface water and groundwater were considered as hydrological sources for the potential mitigation sites. Wetland mitigation sites without adequate water are unlikely to be successful, while it is often feasible to manage excess water. Therefore, only sites where it is believed that sufficient surface water can be delivered or where adequate groundwater exists are being considered for mitigation. Redundancy of hydrology (a combination of surface water and groundwater) will be provided where possible.

Based on this search, three potential wetland mitigation sites were identified (See Figure

2.10 in the Figures Section). Of these three potential wetland mitigation sites, the Fish Farm property was selected as the preferred site for several reasons and is discussed below in more detail.

#### **Site #1 - Fish Farm Wetland Mitigation Site**

This site is located adjacent to the floodplain on the south side of the Grand River in Robinson Township of Ottawa County (T7N, R15W), see Figure 2.11. The site was formerly a sand and gravel mining operation and was more recently an active fish-rearing farm. For the most part, the site is flat with groundwater within 1 to 2 feet of the surface. A small portion, 0.3 acres of the 11 acre property is existing wetlands within the Grand River floodplain. Preliminary field studies indicate that this site has the potential for the creation of seven acres of wetland and could be used as a wetland mitigation bank site.

Field investigations revealed coarse sand and gravel down to the groundwater elevation, located two feet below the surface. The mapped soil for the site primarily consists of poorly drained to very poorly drained hydric Glendora Sandy Loam (Gl). The upland southern edge of the site is mapped as Rubicon Sand (RsF).

Although the site is relatively small, it has a high probability for success due to the availability of groundwater near the surface and its proximity to the Grand River floodplain. Topsoil may need to be brought into the site, however, to provide a suitable planting medium.

Because this site is within the floodplain of the Grand River, this site has a high probability of replicating the floodflow alteration and sediment and toxicant retention functions of the impacted wetlands. The presence of existing wetlands adjacent to the site also increases its potential wildlife habitat value.

This site was available, and was purchased by MDOT. MDEQ has visited this site and given MDOT preliminary approval to use this site as a banking site. Conceptual design plans will be developed in 2005 and MDOT plans on constructing the site in 2006. When constructed, credits from this site may be used to mitigate for wetland impacts associated with the Preferred Alternative of the I-196/I-96 and M-37/M-44 Project.

#### **Wetland Mitigation and Monitoring Plan**

MDOT will commit to establishing a protection and management plan in the form of a deed restriction or conservation easement for the wetland mitigation areas. As required under Section 303, of the P.A. 451 of 1994, MDOT will prepare and submit a comprehensive mitigation and monitoring plan to document the development of the mitigation sites. The mitigation and monitoring plan will follow the technical guidance provided by MDEQ (2003) and will specifically address mitigation goals and objectives, performance standards, monitoring procedures and long-term protection (i.e. conservation easement) of the mitigation site. Minimally, the design will incorporate the following;

- Sites will be designed with buffers,

- Sites will be built before road and bridge construction begin (if feasible),
- No net loss of forested wetlands, and;
- Forested wetlands will provide wildlife habitat.

The mitigation plan will be submitted during the permit process to insure compliance with the current standards.

## **2.19 PERMITS**

A permit under Part 31 (Floodplains) and Part 301 (Inland Lakes and Streams) of Public Act 451 of the 1994 NREPA, is required for work to be conducted below the ordinary high water mark of the Grand River and at stream crossings within the project limits. A permit under Sec. 10 and Sec. 404 from the Army Corps of Engineers will not be required as this reach is not within their jurisdiction and will fall under MDEQ permitting authority. A permit under Part 303 of Public Act 451 of NREPA, Wetland Protection will be needed for wetland impacts at the I-196/I-96 interchange and I-96/M-21 exit ramp.

A permit for impacts to Coldbrook Creek, Heukels, and Robinhood county drains from the MDEQ, and the Office of the Drain Commissioner of Kent County will also be needed.

## **2.20 MEASURES TO MINIMIZE IMPACTS DURING CONSTRUCTION**

The goal of mitigative measures is to preserve, to the greatest extent possible, existing neighborhoods, land use, and resources, while improving transportation. Although some adverse impacts are unavoidable, MDOT through the project development, design, environmental, and construction processes, takes precautions to protect as many social and environmental systems as possible. Specific project mitigation items can be found in the Project Mitigation Summary “Green Sheet” located at the end of this section.

Construction activities which include the general mitigation measures listed below are those contained in the 2003 Michigan Standard Specifications for Construction. These measures include:

1. The contractor shall locate all active underground utilities prior to starting work, and shall conduct his operations in such a manner as to ensure that those utilities not requiring relocation will not be disturbed. Relocated utilities may be temporarily interrupted for short time periods.
2. Accelerated sedimentation caused by highway construction will be controlled before it enters a water body or leaves the highway ROW by the placement of temporary or permanent soil erosions and sedimentation control measures. MDOT has developed a series of standard erosion control items to be included on design plans to prevent erosion and sedimentation. The design plans will describe the erosion controls and

their locations.

3. All regulations of the MDEQ governing disposal of solid wastes must be complied with. When surplus or unsuitable material is to be disposed of outside the ROW, the contractor shall obtain and file with MDOT written permission from the owner of the property on which the material is to be placed. No surplus or unsuitable material is to be permanently disposed of in any public or private wetland area, watercourse, or floodplain area. In addition, no surplus or unsuitable material is to be temporarily disposed of in any public or private wetland area, watercourse, or floodplain area without prior approval (and permit) by the appropriate resource agencies and the Federal Highway Administration..
4. Disruption of traffic in the construction area will be minimized to the greatest extent possible. Although control of all construction-related inconveniences is not possible, motorist and pedestrian safety will be ensured by signing all construction areas. Access will be maintained to properties adjacent to I-196/I-96 and M-37/M-44 to the extent possible.
5. Construction noise will be minimized by measures such as requiring construction equipment to have mufflers, that portable compressors meet federal noise-level standards for that equipment, and that all portable equipment be placed away from or shielded from sensitive noise receptors if at all possible. All local noise ordinances will be adhered to unless otherwise granted exception by the responsible municipality.
6. If nests of migratory birds are present under the bridges, the provisions of the Migratory Bird Treaty regarding nest removal will be followed.
7. A Project Area Contamination Survey (PACS) was conducted to determine if any known or potential sites of environmental contamination exist that could affect the project's design, cost, or schedule. The PACS will cover existing ROW, proposed fee ROW, proposed grading permits, and proposed easements. The PACS process involves an office review of information, a site investigation, and a written report of the findings. Common hazardous/contaminated sites found could include leaking underground fuel storage tanks from former or existing gas stations, former landfills, adjacent industrial or commercial operations, and asbestos lined utility pipes or structure components.
8. All portable bituminous and concrete plants and crushers must meet the requirements for the rules of Part 55 of Act 451, Natural Resource and Environmental Protection. Any portable bituminous or concrete plant and crusher must meet the minimum 250 foot setback requirement from any residential, commercial, or public assembly property and the contractor may be required to apply for a permit-to-install or a general permit from

the MDEQ. The permit process including any public comment period, if required, may take up to six months. .

Design plans will be reviewed by MDOT prior to contract letting in order to incorporate any additional social, economic, or environmental protection items. The construction site will be reviewed to ensure that the mitigation measures proposed are carried out, and to determine if additional protection is required. More mitigation measures may be developed if additional impacts are identified. Specific mitigation items will be included on the design plans and permit applications.

The final mitigation package will be reviewed by MDOT representatives, in cooperation with concerned state, federal, and local agencies. Some changes in the early mitigation concepts discussed in this document may be required when design begins or when in-depth soil borings are taken and analyzed. These mitigation concepts will be implemented to the extent possible. Where changes are necessary, they will be designed and field reviewed before permits are applied for and construction begins. Changes may also be necessary during the construction phase, but they will reflect the early mitigation intent.





# **Project Mitigation Summary “Green Sheet”**

## **For the Preferred Alternative**

**October 21, 2005**

### **Environmental Assessment Programmatic Section 4(f) Evaluation**

**Proposed Improvements of I-196, I-96 and M-37/M-44 (East Beltline) in the  
City of Grand Rapids and Grand Rapids Township,  
Kent County, Michigan**

#### **I. Social and Economic Environment**

a. *Relocations* - Adequate replacements are available for the two businesses and one residence that will be total takes for this project. Minor strips of ROW are also needed at several businesses and residences to accommodate turn lanes and sidewalk improvements. The minor loss of parking at several businesses will be reviewed during design to minimize or mitigate the impact. Acquisition assistance and advisory services will be provided by MDOT in accordance with the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended; and Act 87, Michigan P.A. 1980, as amended.

b. *Maintaining Traffic* - MDOT will maintain one lane of traffic in each direction on trunkline roads but may have to detour traffic onto local roads for short periods of time. A Motorist Information Plan (electronic message signs) will be developed and implemented during construction to identify lane closures and and alternative routes. Coordination with local officials will occur to facilitate emergency service and school bus routes. Access to residences and businesses within the project area will be maintained during construction

c. *Pedestrian/Bicyclists* - Non-motorized trails along both sides of the Grand River will be temporarily closed during the Grand River bridge replacement. MDOT will provide detour signing for pedestrians and non-motorized vehicles during construction and access to the remainder of the trail will be maintained. When construction on the bridges has been completed, the trails will be restored to their original condition or better. During construction, the parking of vehicles or storage of equipment and materials on any public recreational property is prohibited.

## **II. Natural Environment**

- a. *Stream Crossing/Lakes/Streams* - Construction access to the Grand River piers will be provided b staging Plan will be prepared and reviewed with MDEQ and other Resource Agencies prior to the Act 451, Part 31 (Floodplains) and Part 301 (Inland Lakes and streams) permit application. The plan will include soil erosion/sedimentation controls including dewatering operations, temporary causeway/access pad design along with installation/removal phasing and stream navigation requirements (signing and lighting).
- b. *Wetlands* - Approximately 2.13 acres (0.63 acres of palustrine forested and 1.50 acres of palustrine emergent) of wetlands will be impacted by construction of the Preferred Alternative. Using the 2 to 1 mitigation ratio for forested and 1.5 to 1 ratio for emergent, this project will require a total of 3.51 acres (1.26 acres of forested wetland and 2.25 acres of emergent) of wetland mitigation. The mitigation site selected is the fish farm site adjacent to the floodplain on the south side of the Grand River in Robinson Township in Ottawa County. The wetland mitigation and monitoring plan will be included in the Act 451, Part 303 permit to be obtained from the MDEQ.
- c. *Floodplains* - The preliminary hydraulic analysis indicates the new Grand River structure will decrease the 100-year flood stage by 0.12 feet compared to the existing structure. The proposed stream and drain culvert modifications will be reviewed during design to verify hydraulic capacity.
- d. *Threatened/Endangered Species* - At the project pre-construction meeting, written identification materials/guidance will be provided indicating steps to be taken should a Eastern Box Turtle be discovered.

## **III. Cultural Environment**

- a. *Historic Resource* - The SHPO has determined that the proposed work will have no adverse effect on historic properties. If design changes occur in the vicinity of the historic properties, the MDOT Historian must review the changes and coordinate with SHPO and FHWA.

#### **IV. Hazardous/Contaminated Materials**

- a. *Project Contamination* - A Project Area Contamination Survey (PACS) was performed for this project. Potential areas of concern have been identified and additional review (and testing if required) will occur during the design phase when slope-stake lines and construction limits are determined.
- b. *River Sediment Contamination* - River bottom sediments to be excavated for the pier widening in the Grand River will be tested prior to construction to determine potential contamination and required disposal methods.
- c. *Contamination Exposure* - A Workers Health and Safety Plan will be prepared if any asbestos, lead, or other contamination is identified.

#### **V. Construction**

- a. *Construction Access Pads or Work Areas* - Cofferdams and causeways will be constructed in the Grand River to facilitate the widening of the piers. All protection items included in the Construction Staging Plan will be followed.
- b. *Construction Permits* - Permits under Act 451, Parts 31, 301, and 303, are required from the MDEQ for this project. Coverage under the National Pollutant Discharge Elimination System (NPDES), which is administered by MDEQ, is also required.
- c. *Time Restrictions* - Based on the most current available data, no work in the Grand River will be allowed between March 1 and May 1 and also from September 15 to November 30, to protect fish spawning. Work may occur during these times if it is done within an enclosed cofferdam to isolate the construction activity from the water.



## **SECTION 3 - PUBLIC AND AGENCY INVOLVEMENT**

### **3.1 PUBLIC INVOLVEMENT**

A public hearing will be conducted on the proposed project after the EA/4(f) document is distributed for federal, state local and public review. The hearing will allow citizens and local agencies an opportunity to review and provide comments on specific aspects of the project. A copy of the EA/4(f) document will be available at local agencies for review before the public hearing date. A well publicized public information meeting was held on August 19, 2004 at the Grand Rapids Township Hall. The meeting was attended by over 60 people. A public web-site ([http://www.michigan.gov/mdot/0,1607,7-151-9621\\_11058\\_32151--,00.html](http://www.michigan.gov/mdot/0,1607,7-151-9621_11058_32151--,00.html)) is also available for public review and comment on the project.

### **3.2 LOCAL AGENCY PARTICIPATION**

The Michigan Department of Transportation, Federal Highway Administration, and several local agencies including: city of Grand Rapids, Grand Rapids Township, GVMC (Grand Rapids MPO), and the Kent County Road Commission have participated in several stakeholder meetings over the last year. The purpose of these meetings was to allow the local units of government an opportunity to review the proposed improvements being proposed for the various interstates within the Grand Rapids Metropolitan Area.

Other meetings were held with other various stakeholders and the public. Stakeholder meetings were held with other organizations in the Grand Rapids area. Various community organizations and private interests participated in these meetings. Additional opportunity for agency involvement/comment is available through the Grand Rapids MPO monthly committee meetings.

The following are meetings held during the Environmental Assessment process:

2004/2005: MDOT has been actively involved with The Grand Rapids' (Grand Rapids Interurban Transit Partnership) major transit investment study; Great Transit Grand Tomorrows (GT2). GT2's effort to bring about future transit investment in the Grand Rapids area involved extensive data collection and analysis which complimented the work done for this EA. The MTI study process included discussions of project plans and the EA process with staff and committees. Current alternatives being considered in the transit study process do not directly affect the Preferred Alternative in this EA.

August 17, 2004: Stakeholder meeting, Grand Region Office

August 19, 2004: Public Information meeting, Grand Rapids Township

Fall 2004: Discussions and presentation to MPO staff and committees on the EA process.

January, 19, 2005: Grand Rapids Staff, Project Overview

March 8, 2005: Presentation to City of Grand Rapids City Commission

April 12, 2005: Grand Rapids Area Chamber of Commerce's Public Policy Committee and Neighborhood Business Specialist Program.

April 28, 2005: Presentation to City of Grand Rapids Planning Commission. (Follow-up correspondence was sent to Commission Chairperson in response to inquiries raised during the presentation.)

May – October, 2005: Several meetings with city of Grand Rapids staff and developers regarding Michigan Street Hill Development, Life Science Corridor, Spectrum Health, and Van Andel Institute plans near I-196 in downtown Grand Rapids.

July 2005: Initial presentations to MPO committees for their Long Range Transportation Plan amendment process.

August 10, 2005: MPO Transportation Plan amendment public meeting at Grand Rapids Township Hall. MPO Transportation Plan amendment, including air quality conformity finding for the project, was approved by GVMC on October 6, 2005.

Other contacts:

2005 - Right Place Program meetings regarding downtown redevelopment projects

2004 - Field meeting with Resource Agencies

2004/2005 - Several meetings with city of Grand Rapids and developers regarding site redevelopment plans at I-96/M-44/M-37 interchange, plans include expansion of the MDOT carpool lot on this site.

2003/2004 - Spectrum Health representatives regarding ROW and site plan coordination at the I-196/I-96/Leonard St. interchange area.

2001 to 2003 – Several meetings with FHWA staff, local agencies, MPO staff and committees during development of the *Conceptual Long Range Master Plan for I-196 and I-96*.

## SECTION 4 - PROJECT COSTS

### 4.1 PROJECT COSTS

The estimated cost (2005 dollars) for constructing the proposed project is approximately \$375 million dollars, which includes preliminary engineering, final design, ROW, construction engineering, roadway construction and bridge construction. The following Table (4.1) shows the cost for each of the segments which include road and bridge costs as well as local road improvement costs.

<b>Table 4.1</b> <b>I-196 &amp; I-96 Freeway Study Cost Summary by Segment</b>			
<b>Segment</b>	<b>Road &amp; Bridge (\$millions)</b>	<b>Local Road* (\$millions)</b>	<b>Total Cost (\$millions)</b>
I-196: East of US-131 to Fuller Ave.	\$137	\$3	\$140
I-196: Fuller Ave. to I-96/I-196 Jct.	\$47	\$3	\$50
I-96: North of Leonard St. to Cascade Rd.	\$165	\$0	\$165
East Beltline (M-44/M-37) : Knapp St. to Fulton St./M-21	\$15	\$5	\$20
Total	\$364	\$11	\$375

\*Local road modifications recommended by this study will be funded with city/county transportation funds.

Note: The above costs include ROW acquisition, design, contingency and all construction costs. Federal, state and local cost participation will be based upon federal regulations, state laws, and MDOT policies and procedures.

## SECTION 5 - CONCLUSION

### 5.1 CONCLUSION

The MDOT has reviewed this project for potential impacts on the human and natural environments. Based on the information in this Environmental Assessment, field reviews, and coordination with other agencies and the public, it is anticipated that this project will have no long-term significant negative impacts on the natural or human environment within the project area.





## **SECTION 6**

### **PROGRAMMATIC SECTION 4(f) EVALUATION**

#### **6.1 INTRODUCTION**

This project is being processed as approval under the U.S. Department of Transportation, Federal Highway Administration's (FHWA) Programmatic Section 4(f) Evaluation published in the August 22, 1983 Federal Register.

Section 4(f) of the 1966 Department of Transportation Act specifies that publicly-owned land from a park, recreational area, or wildlife and waterfowl refuge of national, state or local significance, or any land from a historic site of national, state or local significance, may not be used for transportation projects unless: 1) there is no feasible and prudent alternative; and 2) proposed projects include all possible planning to minimize harm.

Section 6(f) of the Land and Water Conservation Fund Act (L&WCF), as amended, ensures that property acquired or developed with L&WCF assistance shall not be converted to other than public outdoor recreation uses with out the approval of the Secretary of the U.S. Department of Interior. However, no lands within the proposed project have been acquired or developed with L&WCF assistance and the purchase of ROW is not necessary from any public recreational property. Thus, Section 6(f) documentation is not required.

This Section 4(f) Evaluation discusses the proposed project, its potential impact to a Section 4(f) property, avoidance alternatives and measures to minimize harm. Based on the following evaluation, a preliminary determination has been made by the Division Administrator that the proposed action will temporarily impact a Section 4(f) resource, that all alternatives have been fully evaluated, and that measures will be taken to minimize the impacts to the Section 4(f) land. Upon consideration of comments received from resource agencies and the public concerning the proposed action, the FHWA will either apply the Section 4(f) Evaluation and document the project files or prepare a separate Final Section 4(f) Evaluation for processing under the procedures set forth in FHWA regulations 23 CFR 771.135.

#### **6.2 PROPOSED ACTION**

The MDOT is proposing various capacity and geometric improvements to I-196, I-96 and M-37/M-44, as well as improving several interchanges within the project area. The proposed improvements will be coordinated with bridge rehabilitation and replacement projects planned over the next decade, to minimize traffic disruption and user costs.

The existing I-196 segment of the project area is an urban four lane freeway, which crosses the Grand River, and consists of three local interchanges as well as a junction with I-96. This limited access freeway is the primary east/west route for traffic serving

the downtown Grand Rapids area as well as providing east/west access across the metro area interchanging with I-96 and US-131.

I-196 ultimately connects with I-94 near Benton Harbor and serves as the primary route between Grand Rapids, Holland, and Chicago. MDOT is proposing to improve the freeway by providing a third through lane in each direction with interchange modifications at Ionia/Ottawa Avenues, College Avenue and Fuller Avenue, and auxiliary lanes between identified on/off ramps. MDOT is also proposing to replace several bridges within the project corridor, including the structures over the Grand River and the Grand Rapids Eastern Railroad.

Currently, the I-96 segment in the project area is a four lane freeway (with six lanes between the I-196 Junction, the East Beltline and M-21 interchanges), and consists of 3 interchanges in addition to its connection with the termini of the I-196 freeway. It provides local access for traffic in the northeastern area of Grand Rapids as well as through traffic connecting Muskegon and Lake Michigan with Lansing and Detroit. MDOT is proposing to widen the freeway to provide a third through lane in each direction, interchange modifications at the I-96/Leonard Street interchange, and additional ramps at the I-96/M-21 partial interchange. In addition, an important component within the project area will be the construction of two additional ramps to complete all movements at the I-196/I-96 partial interchange, as well as collector/distributor roads and auxiliary lanes to improve traffic operations in the I-196/I-96/East Beltline interchange area.

The M-37/M-44 (East Beltline) segment of the project is a four lane divided major arterial with controlled access and at-grade intersections. It provides local north/south access to I-96 within the project area on the eastern side of the Grand Rapids metro area, and serves as a state trunkline connecting various communities between Battle Creek and Traverse City. MDOT is proposing to add lanes in both directions as well as several modifications to the existing indirect left-turns, direct left/right turns, and adjacent cross streets.

### **6.3 SECTION 4(f) FACILITIES**

The city of Grand Rapids has numerous parks that are connected by existing trails (walkways). The various trails and parks are shown in Figure 6.1. Within the project area, there are three Section 4(f) facilities that are described below.

#### **Grand River Walkway**

The Grand River Walkway, owned by the city of Grand Rapids, is located on the east side of the Grand River between Michigan Street and the Sixth Street Bridge Park (see Figure 6.2). The beautifully landscaped paved walkway was constructed in 1999 and is used by hundreds of people daily for walking, cycling, jogging, biking, and in-line skating. Additional amenities include a viewing platform of the Grand River, fishing from the walkway and access to the Grand River for fishing. The lighted Grand River Walkway also offers bench seating for relaxing and people watching. The walkway

provides convenient access to downtown, connecting parking areas, shopping, businesses, public parks, and other points of interest.



Figure 6.2 - Grand River Walkway

### **West Side Riverwalk**

The West Side Riverwalk, owned by the City of Grand Rapids, is located on the west side of the Grand River between Fish Ladder Park and Bridge Street (see Figure 6.3). Constructed in 2000, the paved and lighted riverwalk is used by hundreds of people daily for walking, cycling, jogging, biking, in-line skating, and fishing. The West Side Riverwalk also offers amenities such as bench seating for relaxing and people watching. The walkway provides convenient access to downtown, connecting businesses, public parks, and other points of interest.



Figure 6.3 - West Side River Walkway

### **Highland Park**

Highland Park is owned by the city of Grand Rapids, located off of College Ave is bordered on the south side by the Grand Rapids Eastern Railroad and Frontage Road. This 27.76 acre park is utilized for various activities from soccer to dog walking.

## **6.4 IMPACTS ON THE SECTION 4(f) FACILITY**

This project will not permanently affect the Grand River Walkway or the West Side Riverwalk, which are located beneath the I-196 bridges over the Grand River. However, to safely complete the replacement of the I-196 bridges over the Grand River, these trails will need to be temporarily closed at the construction zone. During construction, MDOT in cooperation with the city of Grand Rapids, will provide a signed, designated non-motorized detour route to accommodate pedestrians. The designated pedestrian detour route will be determined in cooperation with the city of Grand Rapids prior to construction.

Highland Park is located adjacent to the I-196 bridge replacement over the Grand Rapids Eastern Railroad. Although the park is adjacent to planned construction activities, no additional ROW will be required from the park and no impacts are anticipated.

## **6.5 AVOIDANCE ALTERNATIVES**

The proposed project cannot be completed without temporarily impacting the recreational trails. The Grand River Walkway and the West Side Riverwalk lie perpendicular to the I-196 bridges over the Grand River, therefore, the Section 4(f) property cannot be avoided unless a no build alternative is chosen. Because the no build alternative is not an option, the trails must be temporarily detoured.

## **6.6 MEASURES TO MINIMIZE HARM**

Several steps have been taken to limit the impact to the Grand River Walkway and the West Side Riverwalk. The construction area will be limited only to the area needed to upgrade the I-196 bridges over the Grand River. The area will be fenced, and signs will be installed to alert pedestrians to choose an alternate route while the I-196 structures are under construction. Access to the remainder of the trail will be maintained; when construction on the bridges has been completed, the trails will be restored to their original condition or better.

Additionally, during the various stages of construction, the contractors will be instructed that parking any vehicles or storing any materials on public recreational property is prohibited.

## **6.7 COORDINATION**

Coordination with the owner of the Section 4(f) properties is required as part of the environmental review. To comply with this requirement, MDOT corresponded with the City of Grand Rapids (owner of the properties). Comments have been incorporated into the document. (See Coordination Letter in Appendix E).

MDOT has notified the MDNR of the proposed project in regards to a Section 6(f) impact. According to the MDNR, no Land and Water Conservation Funds were used on the Grand River Walkway or the West Side Riverwalk. No land conversion is needed for this project.

## **6.8 CONCLUSION**

Based upon the above considerations, there is no feasible and prudent alternative to the use of the Grand River Walkway and West Side Riverwalk. The proposed action includes all possible planning to minimize harm to the trails resulting from such use.